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# Washington University Record, December 4, 2008

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# Record



Washington University in St. Louis

Dec. 4, 2008

record.wustl.edu

## WUSTL research to advance clean coal technology

**C**hancellor Mark S. Wrighton announced during a news conference Dec. 2 the establishment of the Consortium for Clean Coal Utilization.

The University has dedicated more than \$60 million in financial resources during the past year to advance education and research related to energy, environment and sustainability. The new consortium will receive additional support in the form of research partnership commitments of \$5 million each from Arch Coal and Peabody Energy and \$2 million from Ameren, to be paid over five years.

The consortium's goal is to bring university researchers, industries, foundations and government organizations together to research clean coal technology, making St. Louis the nation's center for clean coal research.

"Despite these difficult financial times, the University and these lead corporate sponsors realize that investment in such research will benefit the region and the world in the long run," Wrighton said. "The knowledge and tech-

nology we will be able to create together will over time mean lower costs to customers and global environmental improvement."

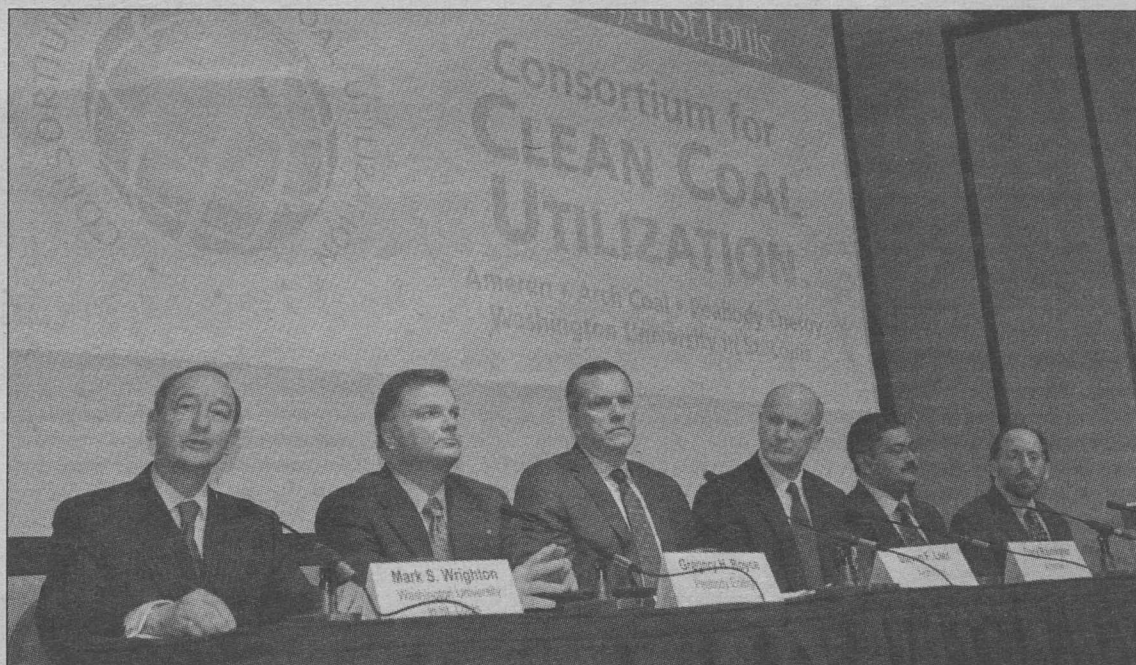
The consortium will foster work to explore co-combustion of coal with biomass or combustion of coal in pure oxygen, both of which can lead to reductions in carbon emissions. Other studies of approaches to carbon capture and storage also will be a part of the consortium's work.

Biomass is a renewable source of energy, and the research of the consortium will help to address Missouri's mandate that renewables constitute a fraction of the source of electricity generated in the state.

The consortium will operate under the umbrella of the International Center for Advanced Renewable Energy and Sustainability (I-CARES), which the University established in June 2007.

The financial commitment to establish I-CARES includes creating six endowed professorships.

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Members of the Consortium for Clean Coal Utilization announce its formation at a Dec. 2 news conference. (From left) Chancellor Mark S. Wrighton; Gregory H. Boyce, chairman and CEO of Peabody Energy; Steven F. Leer, chairman and CEO of Arch Coal; Gary Rainwater, chairman, president and CEO of Ameren; Pratim Biswas, Ph.D., the Stifel & Quinette Jens Professor of Environmental Engineering Science and chair of the energy, environmental and chemical engineering department; and Richard L. Axelbaum, Ph.D., professor of energy, environmental and chemical engineering and director of the consortium.

## Drug therapy for premature infants destroys brain cells in mice

By JIM DRYDEN

**A** class of drugs used in premature infants to treat chronic lung damage can cause damage in the brain. New School of Medicine research suggests the drugs may cause cognitive and motor-control problems even when they are given before birth.

The researchers have identified the cells damaged by the drugs, called glucocorticoids, as well as the time during which brain injury can occur. They say it may be possible

to avoid damage to brain cells and still aid the development of premature lungs if synthetic forms of the drugs can be replaced with hormones made naturally in the body.

The researchers reported their findings in November at the annual meeting of the Society for Neuroscience.

Studying the effects of the drugs in mice, the investigators found that the synthetic glucocorticoids dexamethasone and betamethasone, commonly prescribed to spur the development of premature lungs, cause

damage in the brain's cerebellum, the structure that controls movement, as well as other functions.

Brain cells in the mice died following glucocorticoid treatment when the drugs were given between four and 10 days after birth. The corresponding window in human infants would be about 20 weeks of gestation to six weeks following birth. That's also the time span in which these drugs are given to pregnant women at risk for preterm birth or to prematurely born infants who are

having problems breathing.

"The cells that are damaged are called neural progenitor cells, which are responsible for producing new neurons," said first author Kevin K. Noguchi, Ph.D., staff scientist in the Department of Psychiatry. "So you can imagine that if you kill the cells responsible for producing new neurons, you can cause severe neurodevelopmental deficits."

That's exactly what the researchers found

See Therapy, Page 5



'Home' for the holiday Mahendra Gupta, Ph.D., dean and the Geraldine J. and Robert L. Virgil Professor of Accounting and Management at Olin Business School, welcomes the Lee family of South Korea — (from left) Ji Hye Bae, Seyeon Lee and first-year MBA student Jong Han Lee — to Olin's annual Thanksgiving feast. More than 600 professors, students and families — a record number — gathered in the Knight Center Nov. 27 and gobbled up more than 250 pounds of turkey and all the traditional dishes from stuffing to pumpkin pie. It was the 14th time the Olin School had hosted such an event for its families, many of whom were experiencing their first American Thanksgiving. The George Warren Brown School of Social Work also held a dinner for its students Nov. 23 in Brown Hall, and Dining Services hosted a traditional dinner on Thanksgiving Day for students who stayed on campus during the break.

## With finals looming, programs help students reduce stress

By NEIL SCHOENHERR

**A**s anyone who has ever attended college remembers, the month of December can be stressful. Students not only have to deal with final exams, they have the added stress of going home for the semester break after being away from their families for months.

"Many students experience intense feelings during the winter break between semesters," said Thomas Brounck, Ph.D., associate director and chief of Mental Health Services at WUSTL's Habib Health and Wellness Center. "It is a time of the year that tends to stimulate feelings associated with past memories and expectations. Many students will return to their families after having been away from home for several months, and many will celebrate holidays."

This time of year, Brounck said, is often associated with extreme feelings. Those and other extremes often associated with the season, including food, drink, expectations and memories, can create an atmosphere for stress.

Common stressors for students in

December include:

- Lack of money to buy gifts;
- Not feeling as "jolly" as the media tells and shows them they ought to feel;
- Experiencing the holidays differently as they grow older;
- Having to deal with "family dynamics" when they return home;
- Overindulgence in food and alcohol;
- Feeling rushed to get everything done (shopping, studying for finals, baking, etc.);
- Feelings about friends and family not present during celebrations;
- Fear of not celebrating winter break the way they would like to.

With that in mind and with several exams beginning this week, students and health educators have planned events aimed at reducing stress and giving students a break during this busy time.

Student Health Services staff members will present "ZZZZ's for A's," a program on the link between sleep and academic success,

See Students, Page 5



# Arts & Sciences names new chairs, directors

Six new department and program heads have been named in Arts & Sciences this fall.

Michele Boldrin, Ph.D., the Joseph Gibson Hoyt Distinguished Professor of Economics in Arts & Sciences, succeeds Ping Wang, Ph.D., the Seigle Family Professor in Arts & Sciences, as chair of the Department of Economics;

Randall L. Calvert, Ph.D., the Thomas F. Eagleton University Professor of Public Affairs and Political Science, succeeds Wayne Fields, Ph.D., the Lynne Cooper Harvey Distinguished Professor of English and American Culture Studies, as director of the American Culture Studies Program;

T.R. Kidder, Ph.D., professor of anthropology, succeeds Richard J. Smith, Ph.D., the Ralph E. Morrow Distinguished University Professor, as chair of the Department of Anthropology;

Kathryn G. Miller, Ph.D., professor of biology, succeeds Ralph Quatrano, Ph.D., interim dean of Arts & Sciences and the Spencer T. Olin Professor, as interim chair of the Department of Biology;

Vincent B. Sherry, Ph.D., professor of English, succeeds David A. Lawton, Ph.D., professor of English, as chair of the Department of English; and

Douglas A. Wiens, Ph.D., professor of earth and planetary sciences, succeeds Ray Arvidson, Ph.D., the James S. McDonnell Distinguished University Professor, as chair of the Department of Earth & Planetary Sciences.

In addition, Arts & Sciences will welcome a seventh new director Jan. 1, when Gaylyn Studlar, Ph.D., succeeds Charles Barr in the Program in Film & Media Studies. Studlar's biography will be in the Record next semester.

## Michele Boldrin, Economics

Boldrin is an economist whose wide range of interests has taken him from his native Italy to dozens of countries and universities as a scholar and teacher.

After earning a doctorate from the University of Rochester, Boldrin taught at the University of Chicago; University of California, Los Angeles; Northwestern University's Kellogg School of Management; Universidad Carlos III de Madrid in Spain; the University of Minnesota; and the Santa Fe Institute. He joined the WUSTL

faculty in 2006.

Boldrin's research interests focus on the theory and application of dynamic general equilibrium models as well as the role technological innovation plays on economic growth. He has written on economic growth, business cycles, asset pricing, the welfare system, innovation theory and technological progress, search theory, the labor market, intellectual property, fertility and international trade.

He is a fellow of the Econometric Society, an associate editor of *Econometrica*, an editor of the *Review of Economic Dynamics* and the book review editor of *Macroeconomic Dynamics*. He also is a research fellow of Centre for Economic Policy Research (London) and Fundacion de Estudios de Economia Aplicada (Madrid), and an economic adviser to the Federal Reserve Bank of St. Louis and to the Bank of Japan.

His fourth and latest book, "Against Intellectual Monopoly," argues for the elimination of patents and copyrights. It is co-authored with WUSTL colleague David K. Levine Ph.D., the John H. Biggs Distinguished Professor in Economics.

## Randall L. Calvert, American Culture Studies

Calvert, a specialist in American politics and in positive political theory, joined the faculty as a professor of political science in October 1999.

He also taught at WUSTL as assistant professor from 1979-1985 and as associate professor from 1985-87. In 1984-85, he was a postdoctoral fellow in political economy at Carnegie Mellon University, and he spent 1990-91 as a fellow of the Center for Advanced Study in the Behavioral Sciences.

Before returning to WUSTL, he was the Don Alonzo Watson Professor of Political Science at the University of Rochester, serving as department chair from 1991-96.

Calvert earned a bachelor's degree in mathematical analysis in the social sciences from the University of Kentucky in 1975 and a doctorate in social science from the California Institute of Technology in 1980.

He is the author of the 1986

monograph "Models of Imperfect Information in Politics." His articles on American legislative and electoral politics and on positive theory are published in a variety of leading journals, including *The American Political Science Review* and *The American Journal of Political Science*.

Over the past decade, his research has concentrated on game-theoretic general models of leadership and social institutions. His current research and teaching focus is on game-theoretic models of deliberation based on the coordination of expectations; and on the politics of territorial acquisition in the United States.

Calvert chaired the American Political Science Association's Organized Section on Political Economy and served on the section's council from 1994-96; he now co-edits its newsletter, *The Political Economist*.

## T.R. Kidder, Anthropology

Kidder has been at Washington University since 2003. He earned a doctorate from Harvard University in 1988 and previously was professor of anthropology at Tulane University in New Orleans.

He is interested in North American archaeology and geoarchaeology. His work concerns subsistence studies, paleoecology, paleoclimate, the formation of hierarchical social systems and the histories of complex hunter-gatherers.

Kidder especially is interested in the emergence of social complexity and the relationship between climate change and landscape evolution, and the effects these have on human cultures.

A recent area of study has been exploring the emergence and decline of mound building among complex hunter-gatherer cultures in eastern North America. He has been working at several mound sites in the lower Mississippi Valley, including the well-known Poverty Point site in northeastern Louisiana.

His studies have led into the fields of historical ecology and, more recently, climate history. Kidder is studying how global climate change between 5000-400 B.C. affected civilizations.

Evidence for these studies comes from extensive geological and soil mapping, archaeological investigations and an intensive program of coring in the Mis-

issippi Valley of North American and the Yellow River Valley in China. This research is ongoing, and Kidder plans to expand it in the next few years.

## Kathryn G. Miller, Biology

Miller has been a faculty member in the biology department since 1989. Miller, whose specialty is cell biological aspects of *Drosophila* development, earned a doctorate in biochemistry at Johns Hopkins University School of Medicine in 1981 and was a postdoctoral fellow at the University of California, San Francisco.

She earned a bachelor's degree in chemistry from Lawrence University in 1974. Studies in the Miller laboratory address actin cytoskeletal roles in the development of cell specializations and differentiated cell function using *Drosophila* as a model system. Actin-based specializations are important in many types of differentiated cells within multicellular organisms. Generation, maintenance and function of actin structures required in specialized cells are not well understood.

The Miller lab uses genetics, molecular manipulations in transgenic animals, imaging *in vivo*, biochemistry and cell biological techniques to understand how actin structures form and their function in specialized cells.

Much of Miller's work is aimed at identifying molecules that cooperate with actin capping protein and myosin VI in a variety of cellular contexts to modulate actin structure formation and function.

Because actin is highly conserved and actin structures function in fundamental processes in all cells, the information obtained is widely applicable.

## Vincent B. Sherry, English

Sherry joined the department in 2007 after serving as the Distinguished Professor of English at Villanova University from 2005-07 and the Pierce Butler Professor of English at Tulane University from 2004-05. He was a member of Villanova's English faculty from 1980-2004.

Sherry said high on his departmental agenda in the next few years include the tasks of increasing the number of undergraduate English majors and providing a more developed experience — social as well as intellectual — for students in the program.

He teaches and writes about literary modernism in Britain and Ireland. A current project is the book "Dying Generation: Modernism, Decadence, and the Inspiration of Last Days." The work, he said, traces the relation between "high" modernism and the "decadence" of the writers and painters of the later Victorian Age, mapping out the main lines of continuity and change over the

long turn of the century. He also is writing the Blackwell biography of Ezra Pound.

His publications include "The Uncommon Tongue: The Poetry and Criticism of Geoffrey Hill" (Michigan 1987); "Ezra Pound, Wyndham Lewis, and Radical Modernism" (Oxford 1993); "James Joyce; Ulysses" (Cambridge 1995, and reprinted in 1997, 2000; second edition 2004); and "The Great War and the Language of Modernism" (Oxford 2003, reprinted in 2004, 2006).

In these works, and throughout his career, Sherry said he has focused on bringing a "historically informed understanding to the modernist project."

Sherry earned a bachelor of arts degree in 1970 from the University of Notre Dame and a master's degree in 1974 and doctorate in 1979, both in English language and literature, from the University of Toronto.

## Douglas A. Wiens, Earth & Planetary Sciences

Wiens earned a doctorate in geological sciences in 1985 from Northwestern University. He earned a bachelor's degree in physics from Wheaton College in 1980 and has been a faculty member of the University since 1984.

Wiens oversees 23 faculty members in a department recognized widely for its expertise, being ranked in the top 20 programs nationally in geochemistry, geophysics and planetary sciences.

Wiens' specialty is seismology and geophysics. He has studied earthquakes, tsunamis and volcano eruptions in the western Pacific using instruments deployed on the ocean bottom and on the Tonga, Fiji and Mariana islands. He also has studied mountain building as well as seismic signals from sudden ice stream movement in Antarctica.

Recently, it was announced that Wiens will head the seismology research team of an ambitious international effort to map and analyze an unknown part of Antarctica.

The project is called Antarctica's Gamburtsev Province after the Gamburtsev Subglacial Mountains, which are the main feature of the region. Wiens, teamed with Patrick Shore, lecturer and instrumentation specialist in earth and planetary sciences, and graduate students David Heeszel and Amanda Lough, will install 26 seismographs on the frozen surface of central Antarctica.

This part of the world is a geological mystery because the mountains are covered with more than a mile of ice, so the topography is unknown and there aren't any rock samples to analyze. As part of the celebration of International Polar Year, this international effort will map what lurks beneath the ice using radar and seismic imaging. Last year, Wiens and a group of WUSTL researchers installed 10 seismographs in the same general region.



**Hello, neighbors** Chancellor Mark S. Wrighton discusses the latest happenings at WUSTL with the residents of the City of St. Louis, Clayton and University City at the University's Nov. 24 "Report to the Neighbors" meeting at the Danforth University Center. Wrighton also took part in a question-and-answer session, which allowed WUSTL neighbors to voice questions and concerns to a panel of University administrators. Panel members were Wrighton; Henry S. Webber, executive vice chancellor for administration; James E. McLeod, vice chancellor for students and dean of the College of Arts & Sciences; Arthur J. Ackermann, associate vice chancellor for facilities planning and management; and Cheryl L. Adelstein, director of community relations and local government affairs.

## Free vehicle inspections offered

The Washington University Police Department and Parking Services, in partnership with Hartmann's Towing, will sponsor a free vehicle inspection service to students, faculty and staff Saturday, Dec. 6.

Due to construction on the South 40, the inspections will be held outside of Alumni House off of Wallace Drive between noon and 3 p.m. Inspection staff will check tire pressure, fluid levels, wipers and head- and taillights.

Local businesses have donated oil, windshield washer fluid and other vehicle fluids to allow WUSTL drivers to top off these

fluids before traveling.

"Too often we all neglect to check our vehicles before taking off on a trip," Chief of University Police Don Strom said.

"This is a great, quick and easy opportunity for members of our campus community to get their vehicles inspected and help ensure they have a safe trip over the upcoming break," he said.

The WUPD Bear Patrol will assist the police and parking staff.

For more information, contact Mark Glenn in the WUPD Crime Prevention Office at 935-5084 or by e-mail at mark\_glenn@wustl.edu.



## School of Medicine Update

## Pain, itch responses regulated separately

By JIM DRYDEN

**H**istorically, scientists have regarded itching as a less intense version of the body's response to pain, but School of Medicine researchers have determined that pain and itch actually are regulated by different molecular mechanisms.

At the annual meeting of the Society for Neuroscience, the researchers reported they have separated itch and pain sensations in mice, a finding that could have important implications for treating both pain and chronic itching. The two problems often occur together because itching is a common side effect of strong drugs for pain.

Last year, the research team, led by Zhou-Feng Chen, Ph.D., associate professor of anesthesiology, of psychiatry and of developmental biology, was the first to identify an itch gene. The scientists published those findings in the journal *Nature*. Now, further experiments have demonstrated that pain signals are not affected when mice are bred without the itch gene or the gene's actions are blocked.

The itch gene, called GRPR (gastrin-releasing peptide receptor), makes a receptor found in a

very small population of nerve cells in the spinal cord. That region of the spinal cord transmits pain and itch signals as well as temperature sensation from the skin to the brain. When exposed to itchy stimuli, mice without the gene scratched less than their normal littermates.

"There are two major types of itching," said Chen, an investigator at WUSTL's Pain Center. "There is histamine-dependent itching caused by bug bites or allergic reactions that can be treated with antihistamine drugs. But the majority of chronic, severe itching is resistant to antihistamine treatment."

Many patients with chronic pain receive spinal injections of opioid drugs, such as morphine, to control their pain. One of the well-known side effects of that treatment is itchy skin.

"Most scientists believed that the itching could not be separated from the drug's pain-killing effects," Chen said. "We hypothesized that GRPR may be responsible for the itching but not involved in the pain response."

So Chen's team went back to the mice bred with and without GRPR and compared both scratching behaviors and pain-killing effects

following spinal injections of morphine. All of the mice got relief from a mildly painful stimulus, but those without the GRPR gene did not scratch.

Next, they studied normal mice treated with a small peptide that interferes with GRPR function. When injected with the GRPR blocker, mice still got morphine's pain-killing benefits, but they did not itch.

"This is very interesting because it demonstrates that analgesia and itching can be separated," Chen said. "There may be itch-specific genetic pathways in the spinal cord that are not related to

pain sensation."

This result contrasts with a previous finding from Chen's team. In prior studies when GRPR mutant mice were compared with normal, control mice, they demonstrated significantly decreased scratching behavior in response to itchy stimuli, but they still scratched. In this study, however, morphine-induced scratching behavior was completely eliminated in GRPR mutant mice, suggesting GRPR is essential in transmitting itching induced by opioids.

Chen said this genetic pathway for itch sensation seems to be

conserved in all mammals. Like mice, humans also have GRPR genes, so he said he believes it may be possible to treat chronic itching in humans with a similar strategy. Those people, he said, would continue to get pain relief from drugs such as morphine, but they would not feel as itchy after receiving the drug.

"Our findings could have important therapeutic implications," Chen said. "More research needs to be done, but it may be possible to relieve itching in patients by blocking GRPR function without affecting the pain pathway."



Chen



**Thanks, professors** (From left) David Rosen, an M.D./Ph.D. student; Gladys Tse, M.D., assistant professor of obstetrics and gynecology; Arie Perry, M.D., professor of pathology and immunology; and Amit Patel, a third-year medical student and president of the class, discuss the Distinguished Service Teaching Awards after the Nov. 18 ceremony at the Eric P. Newman Education Center. The awards are presented annually by medical students to faculty and house staff in appreciation of exemplary service in medical student education. In all, more than 40 faculty and 10 residents received awards from the Classes of 2009, 2010 and 2011. Tse was named Clinical Lecturer of the Year by the Class of 2009, and Perry was named Professor of the Year by the Class of 2010. To see more photos from the event and a complete list of awardees, visit [mednews.wustl.edu/DSTA](http://mednews.wustl.edu/DSTA).

## Gene chips find pneumonia in patients on ventilators

By CAROLINE ARBANAS

**E**ven seasoned doctors have a difficult time diagnosing pneumonia in hospitalized patients breathing with the assistance of a ventilator. That's because a patient's underlying illness often skews laboratory test results and masks pneumonia's symptoms.

Now, School of Medicine researchers report they have validated the use of gene chip technology to rapidly and accurately detect pneumonia associated with ventilator use in hospitalized patients. While more testing is needed among larger patient groups, their work suggests gene chips may lead to early, more accurate diagnosis and treatment of ventilator-associated pneumonia, one of the most common and deadly hospital-acquired infections in the United States.

The research was presented recently at a symposium by J. Perren Cobb, M.D., director of the Center for Critical Illness and Health Engineering.

"This is an important step toward validation of a specific molecular test for diagnosing infection — particularly pneumonia — and predicting patients' recovery," Cobb said. "If we could determine which patients are destined to develop pneumonia based on early changes in the activity of genes that regulate immune response, we could give them antibiotics sooner, with the hope that we could prevent or curtail the infection."

Cobb and his team first analyzed patterns of expression in more than 8,000 genes in a small patient cohort at Barnes-Jewish Hospital, where Cobb specializes in the care of critical illness and injury. The researchers used the gene chips to study gene expression patterns in infection-fighting white blood cells obtained from blood samples drawn every 48 hours. The team found that chan-

ges in the activity of 85 genes could pinpoint the early activation of the immune system in response to pneumonia, typically several days before clinical symptoms developed. By adding computational tools to their genomic analysis, the researchers also showed they could objectively monitor patients' recovery by graphing changes over time, using a tool they developed called a "riboleukogram."

The researchers then evaluated the 85-gene riboleukogram in 158 ICU patients on ventilators as part of a large-scale collaborative research program funded by the National Institute of General Medical Sciences. The technology accurately identified the 52 patients who developed pneumonia in the days following the insertion of their breathing tubes.

The riboleukograms looked similar in all patients in the first several days after the breathing tubes had been inserted. But between the fourth and seventh days, the expression of the 85 genes was significantly altered in the patients who had developed pneumonia versus those who had not.

The modified gene expression occurred some 24-72 hours before clinical symptoms of pneumonia were detected by physicians.

"This suggests that we could start patients on antibiotics sooner, say at the first change in these genomic vital signs, which could significantly improve their ability to recover from pneumonia," Cobb said.

Interestingly, the researchers noted that as the health of the patients with pneumonia improved, alterations in the expression of the 85 genes diminished, indicating they had returned to a healthy state. Thus, Cobb and colleagues suggest that riboleukogram technology can be used to quantify immune health and disease, acting as an EKG for the immune system.



Cobb

## Moderate use averts failure of diabetes drugs

By MICHAEL C. PURDY

**D**rugs widely used to treat type 2 diabetes may be more likely to keep working if they are used in moderation, School of Medicine researchers have found using an animal model.

The drugs, sulfonylureas, help type 2 diabetics make more insulin, improving control of blood sugar levels. But, in most patients, the effects of sulfonylureas are lost after several years of use, causing insulin secretion to shut down. This typically forces patients to switch to regular insulin injections.

"Why this happens isn't clear yet, but we've found what may be cause for hope," said senior author Colin G. Nichols, Ph.D., the Carl F. Cori Professor and professor of cell biology and physiology. "We've shown in a mouse model that whatever causes this shutdown doesn't kill the insulin-making beta cells of the pancreas or stop them from making insulin. Instead, it somehow stops them from secreting insulin."

When they stopped receiving the drug, beta cells began secreting insulin again hours later. Nichols and co-author Maria Sara Remedi, Ph.D., research instructor in cell biology and physiology, reported the findings in *Public Library of Science Medicine*.

"I find these experimental observations very exciting," said Alan Permutt, M.D., professor of medicine and of cell biology and physiology. "But I'm very cautious that patients understand that the relevance of this model to human diabetes and its treatment still needs to be tested."

If human beta cells also survive and can continue to produce insulin after long-term sulfonylurea exposure, it may be possible to rethink treatment strategies, Nichols said.

"Doctors now prescribe new, long-acting sulfonylureas to establish a chronic presence of the drug in the bloodstream," he said. "But it may be beneficial to use the older drugs that go away more quickly, allow-

ing the beta cells time to recover."

Another potential option would be alternating periods of drug treatment with periods when the patient's symptoms are managed by insulin injection, Nichols said.

Type 2 diabetes accounts for 90 percent to 95 percent of the estimated 16 million Americans with diabetes. Patients with the disorder develop resistance to insulin, a hormone that helps the body control blood sugar levels. In many cases, their beta cells also make less insulin. Physicians typically treat the condition with a sulfonylurea and metformin, a drug that increases insulin sensitivity.

Sulfonylureas bind to potassium channels on the surfaces of beta cells. These channels normally control electrical activity and hence the levels of calcium in the cell; when the drug blocks the channels, calcium levels rise in the beta cell, causing release of insulin.

Nichols and Remedi saw an important opportunity to learn about the long-term failure of sulfonylureas by using an implantable time-release capsule of one of the drugs, glibenclamide, in the necks of mice.

As expected, the drugs initially caused mouse beta cells to release more insulin, and blood sugar levels dropped rapidly. Within a few days, though, the response to the drug reversed: Insulin secretion levels dropped, and blood sugar levels rose dramatically.

Examination of the pancreas showed that the animals' beta cells were still alive and contained normal levels of insulin.

"The problem seems to lie somewhere between the trigger for secreting insulin, which was hyperactivated while they were on the medication, and the actual mechanisms that release insulin," Nichols said. "The insulin is there, it's just not ready to release."

Nichols and Remedi are seeking further insight into the causes of this breakdown.



Nichols



# University Events

## Kemper presents 'Some Like it Cool' film series at the Tivoli

The Mildred Lane Kemper Art Museum will present three classic Hollywood films as part of its "Some Like it Cool" film series Dec. 9-11.

Held in conjunction with the exhibition "Birth of the Cool: California Art, Design and Culture at Midcentury," the festival will feature screenings of "Rebel Without a Cause" Tuesday, Dec. 9; "Anatomy of a Murder" Wednesday, Dec. 10; and "North by Northwest" Thursday, Dec. 11.

All screenings are free and open to the public and begin at 7 p.m. at the Tivoli Theatre, 6350 Delmar Blvd.

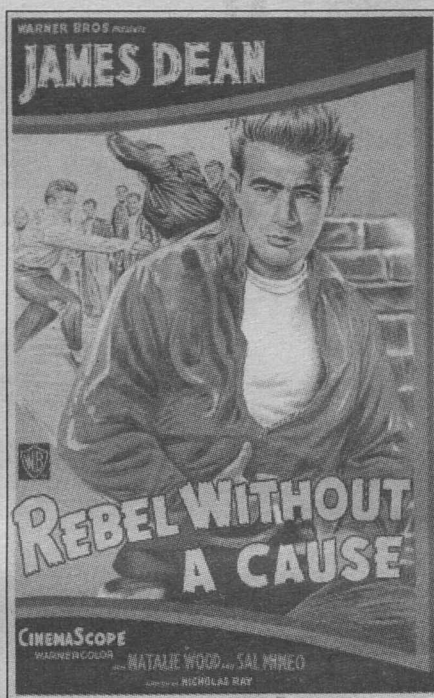
The lineup:

**"Rebel Without a Cause," Tuesday, Dec. 9.** Directed by Nicholas Ray, this 1955 iconic film of adolescent rebellion stars James Dean as Jim Stark, a restless teen whose quarrelling parents move to the Los Angeles suburbs.

There, he befriends Plato (Sal Mineo), a worshipful but unstable 15-year-old, and Judy (Natalie Wood), a coolly ironic girl whose high-school gang is led by local bully Buzz Gunderson (Corey Allen).

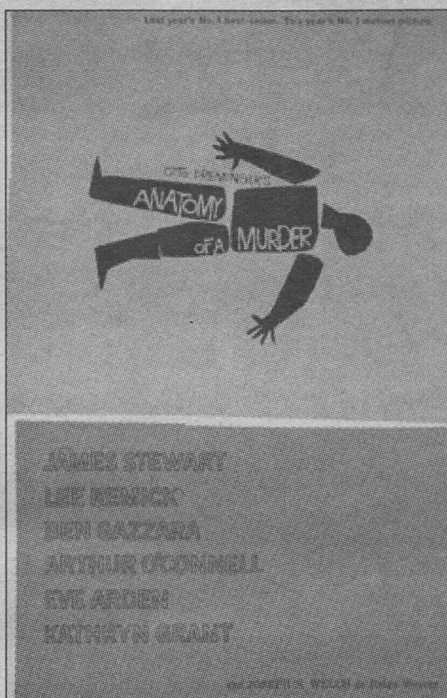
Things come to a head when the gang challenges Jim to a disastrous game of "chickie run," racing stolen cars towards a nearby cliff.

**"Anatomy of a Murder," Wednesday, Dec. 10.** One of the first films to feature a full jazz score — written by Duke Ellington and performed by his orchestra — this Oscar-winning 1959 courtroom drama directed by Otto Preminger stars James Stewart as Paul Biegler, a small-town lawyer called to defend on a murder charge army lieutenant Frederick Manion (Ben Gazzara).



Manion admits to the crime but claims the dead man, bartender Barney Quill, had raped and beaten his wife, Laura Manion (Lee Remick). Biegler, lacking hard evidence and matched against big-city prosecutor Claude Dancer (George C. Scott), launches a daring defense, claiming that Manion was seized by a kind of temporary insanity.

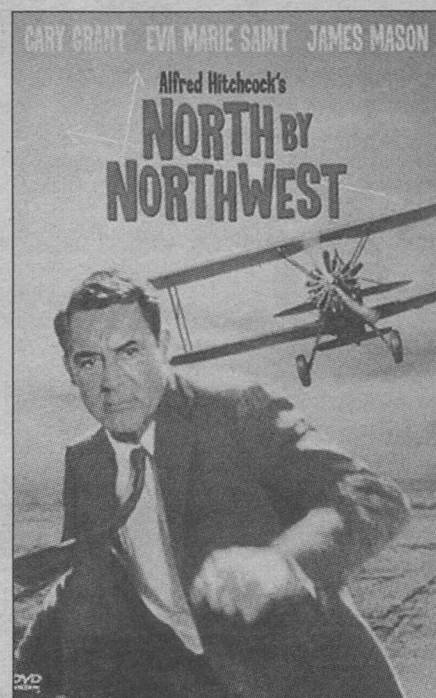
**"North by Northwest," Thursday, Dec. 11.** This breathless 1959 thriller



directed by Alfred Hitchcock stars Cary Grant as Roger Thornhill, a middle-aged advertising executive who is mistaken for government agent George Kaplan.

Kidnapped by a gang of spies, Thornhill is interrogated by their leader, Phillip Vandamm (James Mason), but manages to escape, only to find himself framed for murder.

Realizing the only way to clear his name is to find the real Kaplan, Thornhill begins a 3,000-mile cross-country chase,



aided only by a mysterious young woman, Eve Kendall (Eva Marie Saint), whose help almost costs Thornhill his life.

The exhibition "Birth of the Cool," which explores the broad cultural zeitgeist of "cool" that emerged in Southern California in the 1950s and early '60s, remains on view at the Kemper Art Museum through Jan. 5.

For more information about the film festival or the exhibition, call 935-4523 or visit kemperartmuseum.wustl.edu.

## Women and Aging • Journey of Hope • Guitar Gala

"University Events" lists a portion of the activities taking place Dec. 4-17 at Washington University. Visit the Web for expanded calendars for the Danforth Campus (news-info.wustl.edu/calendars) and the School of Medicine (medschool.wustl.edu/calendars.html).

### Exhibit

**"Birth of the Cool: California Art, Design and Culture at Midcentury."** Through Jan. 5. Kemper Art Museum, 935-4523.

### Films

#### Thursday, Dec. 4

**7 p.m. Jewish, Islamic and Near Eastern Film Series.** Middle East-North Africa Film Series. "Persepolis." Brown Hall, Rm. 118. 935-8567.

#### Tuesday, Dec. 9

**7 p.m. Kemper Art Museum Film Festival.** Some Like It Cool Film Series. "Rebel Without a Cause." Tivoli Theatre, 6350 Delmar Blvd. 935-4523.

#### Wednesday, Dec. 10

**7 p.m. Kemper Art Museum Film Festival.** Some Like It Cool Film Series. "Anatomy of a Murder." Tivoli Theatre, 6350 Delmar Blvd. 935-4523.

#### Thursday, Dec. 11

**7 p.m. Kemper Art Museum Film Festival.** Some Like It Cool Film Series. "North by Northwest." Tivoli Theatre, 6350 Delmar Blvd. 935-4523.

### Lectures

#### Thursday, Dec. 4

**Noon. Genetics Seminar.** "Predictive Behavior Within Microbial Genetic Networks." Saeed Tavazoli, assoc. prof. of molecular biology, Princeton U. Cori Aud., 4565 McKinley Ave. 362-2139.

**4 p.m. History Colloquium.** "Rediscovering Thomas Jefferson." David Konig, prof. of history. (Reception follows.) Eliot Hall, Rm. 300M. 935-5450.

**4 p.m. Jewish, Islamic and Near Eastern Studies Lecture.** "Fact, Fiction and

Notoriety: The Art of Reading Ancient Jewish Inscriptions." Jonathan Price, prof. of classics & history, Tel Aviv U. Eads Hall, Rm. 216. 935-8567.

**4 p.m. Vision Science Seminar Series.** "Interleukin-10 Overexpression Results in Chronic Macrophage-Mediated Demyelinating Polynuropathy." Dru S. Dace, postdoctoral research assoc. in ophthalmology & visual sciences. Maternity Bldg., Rm. 725. 362-3315.

#### Friday, Dec. 5

**7:30 a.m.-4:30 p.m. Women's Health CME Course.** Annual Contemporary Women's Health Issues. "Women and Aging: What Is Preventable and What Is Inevitable?" Cost: \$160 for physicians, \$110 for allied health professionals. Eric P. Newman Education Center. To register: 362-6891.

**11 a.m. Computer Science and Engineering Colloquium.** "Spatial 3D Interfaces and Video Games." Joseph J. LaViola, asst. prof. of engineering and computer science, U. of Central Fla. Cupples II Hall, Rm. 217. 935-6160.

**11 a.m. Olin Business School Operations and Manufacturing Management Seminar.** "Strategic Information Management Under Leakage in a Supply Chain." Manu Goyal, asst. prof. of decision & information technology, U. of Md. Co-sponsored by Boeing Center for Technology, Information and Manufacturing. Simon Hall, Rm. 241. 935-5577.

**Noon. Cell Biology and Physiology Seminar.** "Imaging GPCR Signaling in Living Cells." N. Gautam, prof. of anesthesiology, McDonnell Medical Sciences Bldg., Rm. 426. 362-6950.

**4 p.m. Dept. of Music Lecture Series.** "Olivier Messiaen at 100." Hugh Macdonald, prof. of music. Music Classroom Bldg., Rm. 102. 935-5566.

#### Monday, Dec. 8

**3 p.m. Siteman Cancer Center Neuro-Oncology Seminar Series.** "The Pathology of Pediatric Gliomas." Arie Perry, prof. of pathology & immunology. South Bldg., Rm. 3907, Philip Needleman Library. 454-8981.

**4 p.m. Neurology Lecture.** Annual William M. Landau Lectureship. "The View From the Other Side: What Can Film Tell Us About Our Patients?" Gretchen Berland, assoc. prof. of internal medicine, Yale School of Medicine. Eric P. Newman Education Center. 362-7177.

**4 p.m. Physics Seminar.** Condensed Matter/ Materials and Biological Physics Seminar. "Novel Quantum Criticality and Emergent Particles in Trapped Cold Atom Systems." Kun Yang, prof. of physics, Fla. State U. (3:45 p.m. coffee.) Compton Hall, Rm. 241. 935-6276.

**4 p.m. Siteman Cancer Center Basic Science Seminar Series.** "Cancer Immunomodulation: Using Mouse Cancer Models to Guide Us Towards Novel Human Cancer Immunotherapies?" Robert Schreiber, prof. of pathology & immunology. Co-sponsored by Tumor Immunology Research Seminar Series. Farrell Learning & Teaching Center, Connor Aud. 454-7029.

**4 p.m. Siteman Cancer Center Breast Cancer Seminar Series.** "Nanotheranostics for Cancer Diagnosis and Treatment." Samuel Wickline, prof. of medicine. Center for Advanced Medicine, Farrell Conference Rm. 2. 454-8981.

**5:30 p.m. Cardiac Bioelectricity and Arrhythmia Center Seminar.** "Dual Energy Quantitative X-Ray CT Imaging." Joseph A. O'Sullivan, prof. of electrical and systems engineering. (5 p.m. reception.) Whitaker Hall, Rm. 218. 935-7887.

#### Tuesday, Dec. 9

**Noon. Molecular Microbiology and Microbial Pathogenesis Seminar Series.** "Role of the AP-4 Complex in Sorting of the Amyloid Precursor Protein." Juan S. Bonifacio, cell biology and metabolism, National Inst. of Health. Cori Aud., 4565 McKinley Ave. 362-3692.

**5:30 p.m. Biochemistry and Molecular Biophysics Seminar.** Biophysical Evening Seminar. "Animating the Transport Cycle: The Role of Protein Dynamics in Multidrug Resistance Activity of EmrE." Katherine Henzler-Wildman, asst. prof. of biochemistry and molecular biophysics. Cori Aud., 4565 McKinley Ave. 362-4152.

#### Wednesday, Dec. 10

**9 a.m.-4:30 p.m. Center for the Application of Information Technology Training Workshop.** (Continues 9 a.m.-4:30 p.m. Dec. 11.) "The Politics of IT Project Management." Cost: \$1,250; reduced fees available for CAIT member organizations. CAIT, 5 N. Jackson Ave. To register: 935-4444.

**4 p.m. Vision Science Seminar Series.** "Neuroprotection and Retinal Ganglion Cell Death in Glaucoma." Cynthia L. Grosskreutz, assoc. prof. of ophthalmology, Harvard Medical School. Maternity Bldg., Rm. 725. 362-3315.

#### Thursday, Dec. 11

**Noon. Genetics Seminar.** "Lissencephaly: Smooth Brains, Neuronal Migration and Stem Cell Division." Tony Wynshaw-Boris, chief of the div. of medical genetics, U. of Calif., San Francisco. Cori Aud., 4565 McKinley Ave. 362-2139.

**4 p.m. Vision Science Seminar Series.** "Damage to Brain Connections Causes

Strabismus in Infants: Human and Monkey." Lawrence Tychsen, prof. of ophthalmology and visual sciences. Maternity Bldg., Rm. 725. 362-3315.

#### Friday, Dec. 12

**11 a.m. Computer Science and Engineering Colloquium.** "Visual Analysis in Computational Medicine: Illumination, Perception and Simulation Applied to the Brain." David C. Brooks, Harvard Neurodiscovery Center. Cupples II Hall, Rm. 220. 935-6160.

**11 a.m. Electrical & Systems Engineering Seminar.** "Magnetic Resonance Imaging and the Diffusion of Water: Physical Chemistry and Biophysics Meet Radiology." Joseph J. H. Ackerman, prof. of chemistry. Bryan Hall, Rm. 305. 935-5565.

#### Monday, Dec. 15

**4 p.m. Immunology Research Seminar Series.** "Plasticity of Regulatory T Cells During Infection." Yasmine Belkaid, National Inst. of Allergy and Infectious Diseases, National Inst. of Health. Moore Aud., 660 S. Euclid Ave. 362-2763.

**4 p.m. Vision Science Seminar Series.** "Neurodegeneration in Glaucoma: From Brain to Retina." David J. Calkins, assoc. prof. of ophthalmology and visual sciences, Vanderbilt Medical Center. Maternity Bldg., Rm. 725. 362-3315.

#### Tuesday, Dec. 16

**11 a.m. Electrical & Systems Engineering Seminar.** "Detection, Estimation and Beamforming for Adaptive Sensor Arrays: Algorithms and Performance." Christ D. Richmond, technical staff, Lincoln Lab., MIT. Bryan Hall, Rm. 305. 935-5565.

### And More

#### Wednesday, Dec. 17

**5:30-8 p.m. Siteman Cancer Center Art Showing.** "Experience the Journey of Hope." Co-sponsored by MedPIC and the Arts as Healing Program. Duane Reed Gallery, 7513 Forsyth Blvd. To R.S.V.P.: 362-3320.

### Music

#### Thursday, Dec. 4

**8 p.m. Jazz at Holmes.** Steve Schenkel, guitar, and Ashley Mason, vocals. Ridgley Hall, Holmes Lounge. 935-4841.

#### Friday, Dec. 5

**8 p.m. Concert.** Concert Choir. Graham Chapel. 935-5566.

#### Sunday, Dec. 7

**3 p.m. Concert.** Messiah Sing-Along. Graham Chapel. 935-5566.

#### Monday, Dec. 8

**8 p.m. Concert.** Flute Choir. Graham Chapel. 935-5566.

#### Tuesday, Dec. 9

**8 p.m. Concert.** Chamber String Ensembles. Ridgley Hall, Holmes Lounge. 935-5566.

#### Thursday, Dec. 11

**8 p.m. Concert.** Guitar Gala. Graham Chapel. 935-5566.

#### Friday, Dec. 12

**8 p.m. Concert.** Opera Scenes. (Also 8 p.m. Dec. 13.) Umrath Hall Lounge. 935-5566.

### On Stage

#### Friday, Dec. 5

**8 p.m. Performing Arts Dept. Presentation.** Washington University Dance Theatre. "Common Ground." (Also 8 p.m. Dec. 6; 2 p.m. Dec. 7.) Cost: \$15, \$10 for students, faculty and staff. Edison Theatre. 935-6543.

### Sports

#### Friday, Dec. 5

**8 p.m. Men's Basketball vs. Hamilton College.** Annual Lopata Classic. Athletic Complex. 935-4705.

#### Saturday, Dec. 6

**3 p.m. Men's Basketball vs. III. Wesleyan U.** Annual Lopata Classic. Athletic Complex. 935-4705.

#### Saturday, Dec. 13

**1 p.m. Women's Basketball vs. Fontbonne U.** Athletic Complex. 935-4705.

**3 p.m. Men's Basketball vs. Fontbonne U.** Athletic Complex. 935-4705.





**Students by day, rockers by night** Members of The McDreamies, a band made up of students in the School of Medicine, perform during the graduate school "Battle of the Bands" Nov. 20 at The Gramophone in St. Louis. Students from the School of Law had two bands in the competition, De Facto and The Restatement, and a group from the Olin Business School, Phat Cat McGhee and the Warren Buffets, also performed at the inaugural event. The competition was close, but The McDreamies were named the winning band after a well-timed stage dive by one of its members.

## Sports

### Women's hoops wins McWilliams Classic

Senior Jill Brandt scored a career-high 29 points to lead the No. 6 women's basketball team to an 83-54 win over Carthage College at the WU Field House Nov. 30, capturing the Eighth Annual McWilliams Classic championship.

For her performance, Brandt was named the McWilliams Classic MVP. Joining Brandt on the all-tournament team was senior forward Jaimie McFarlin and sophomore forward Kathryn Berger. Senior Shanna-Lei Dacanay broke the McWilliams Classic single-game and tournament assist records with a career-high 10 assists against Carthage and 14 assists for the tournament.

WUSTL advanced to the championship game with a 96-73 win over Whittier College Nov. 29. The team (4-1) returns

to action Friday, Dec. 5, when it takes on Whitworth University in Spokane, Wash.

### Men's basketball wins fifth straight on road

Junior Aaron Thompson scored a game-high 20 points and was named the tournament MVP as the No. 1-ranked Bears overcame a seven-point halftime deficit to post a 70-68 victory over Anderson University in the championship game of the Anderson Invitational Nov. 29 in Anderson, Ind.

Junior Zach Kelly was named to the all-tournament team along with Thompson as Kelly averaged 15.5 points and 7.0 rebounds per game.

WUSTL (5-0) hosts the 25th Annual Lopata Classic this weekend at the WU Field House. The Bears take on Hamilton College (3-0) Friday, Dec. 5, at 8 p.m. in the tournament opener and then

host No. 18 Illinois Wesleyan University 3 p.m. Saturday, Dec. 6.

### Cross country 12th at championship meet

The women's cross country team finished 12th at the 2008 NCAA Division III Championships held Nov. 22 in Hanover, Ind.

Sophomore Taryn Surtees was the top finisher for the Bears, placing 30th and completing the 6K course in 21:36.03. With her 30th-place finish, Surtees earned U.S. Track and Field and Cross Country Coaches Association All-America honors for the first time in her career.

The Bears tallied 371 points as a team, placing ahead of two other University Athletic Association competitors, Case Western Reserve University (16th place) and Emory University (24th place).

### Women's soccer falls in NCAA tournament

The women's soccer team ended its first season under head coach Jim Conlon after losing to Wheaton College 3-0 Nov. 21 in the NCAA Division III Sectional Semifinal.

The Bears finished at 15-4-2 and won their third straight and sixth overall University Athletic Association title.

### Swimming and diving at WU Invitational

The women's swim team placed first and the men's squad was second at the WU Thanksgiving Invitational held Nov. 22-23 at the Millstone Pool in St. Louis.

The WUSTL women won six total events at the meet, while the men won three, and the two squads combined to meet three NCAA provisional qualifying times.

Junior Alex Beyer grabbed two first-place finishes and met the NCAA "B" cut time in a pair of events. He won the 500-yard freestyle and was runner-up in the 1,650-yard freestyle. Senior Kelly Kono met the third NCAA provisional time, winning the 500-yard freestyle. Both teams return to action Friday, Dec. 5, when they compete in the two-day Wheaton Invitational in Wheaton, Ill.



Sophomore Taryn Surtees helped the women's cross country team to a 12th-place finish at the NCAA Division III championship meet.

## University College to host Preview Night Dec. 11

By JESSICA DAUES

University College, the evening and summer program in Arts & Sciences, will host a Preview Night 7 p.m. Dec. 11 in Holmes Lounge in Ridgley Hall.

Preview Night features speakers who will discuss class and program offerings, admissions requirements and financial aid. Spring semester classes at University College start Jan. 12, 2009.

"Preview night is the most vivid and efficient event for someone considering University College specifically or returning to school generally," said Robert E. Wiltenburg, Ph.D., dean of University College.

"We gather together current students and faculty, program coordinators and University College advisers to provide information and reflection on all

aspects of the adult education experience: academics, programs, costs, career planning, etc.," Wiltenburg said.

Preview Night is open to the public. A special breakout room will be available for University College to answer questions specifically geared to WUSTL employees.

University College classes are free to full-time, benefits-eligible WUSTL employees with one year or greater length of service before the first day of classes. For more information about this benefit, visit [hr.wustl.edu](http://hr.wustl.edu).

A light dinner and dessert will be served.

To R.S.V.P., call 935-6777 or visit [ucollege.wustl.edu/preview](http://ucollege.wustl.edu/preview).

For more information about Preview Night or University College, contact Katina Truman at 935-6777 or [krtruman@artsci.wustl.edu](mailto:krtruman@artsci.wustl.edu).

## Inclement weather information

Should weather conditions create potentially hazardous travel conditions, Washington University will evaluate the situation and take into consideration the safety of the faculty, staff and students as well as the services that must be provided despite the inclement weather.

In the unlikely event that WUSTL alters the normal work and/or class schedule, an announcement will be posted on the University's home page ([wustl.edu](http://wustl.edu)), and a number of media outlets also will air an announcement.

Separate announcements will be made regarding the Danforth Campus (which includes all campuses other than the Medical Campus), the Medical Campus and evening school classes.

These announcements will apply only to Washington University students, faculty and staff.

The media outlets that would air such an announcement are KTVI-TV Channel 2, KMOV-TV Channel 4, KSDK-TV Channel 5, WSIE-FM (88.7) and KMOX-AM (1120).

## Therapy

— from Page 1

when they studied adolescent mice that had been treated with glucocorticoids during infancy. A single exposure to glucocorticoid drugs permanently decreased the number of neurons in the cerebellum of the mouse brain.

In the past, the steroid drugs were given to low-birthweight infants after birth, but studies determined that exposure to the drugs following birth could lead to cognitive problems and neuro-motor deficits, particularly difficulty with balance and coordination. In 2002, the American Academy of Pediatrics recommended postnatal glucocorticoid use be stopped unless used in clinical trials, but the drugs still are given frequently to mothers at risk for preterm birth.

"The cerebellum connects to other brain structures, so when granule cells in the cerebellum are lost, you also have detrimental effects on cognitive function in non-motor regions of the brain," said senior investigator Nuri B. Farber, M.D., associate professor of psychiatry. "Other researchers have found IQ declines in children who have received these

drugs early in life, and our findings may help explain why."

But both Farber and Noguchi say therapy with these drugs may be essential for some children with immature lungs as a lifesaving measure. However, they say it may be possible in the future to use different drugs to help the lungs mature without damaging brain cells.

"We're looking at differences between glucocorticoids that are made naturally in the body and hormones that are manufactured," Noguchi said. "The brain has some natural defenses against exposure to endogenous glucocorticoids but not the synthetic ones. So it may be possible to administer some of those natural hormones, which can help the lungs mature without putting the brain at risk."

It also may be possible to develop other drugs that would assist with lung development without killing cells in the cerebellum. But as they study those possibilities, the investigators say they want parents to know that the observed toxic effects of steroid drugs are not a problem for adults and older children. They estimate that by about three months of age, human infants no longer are at high risk for this damage.

## Students

— from Page 1

from 11 a.m.-12:30 p.m. Thursday, Dec. 4, in the Danforth University Center.

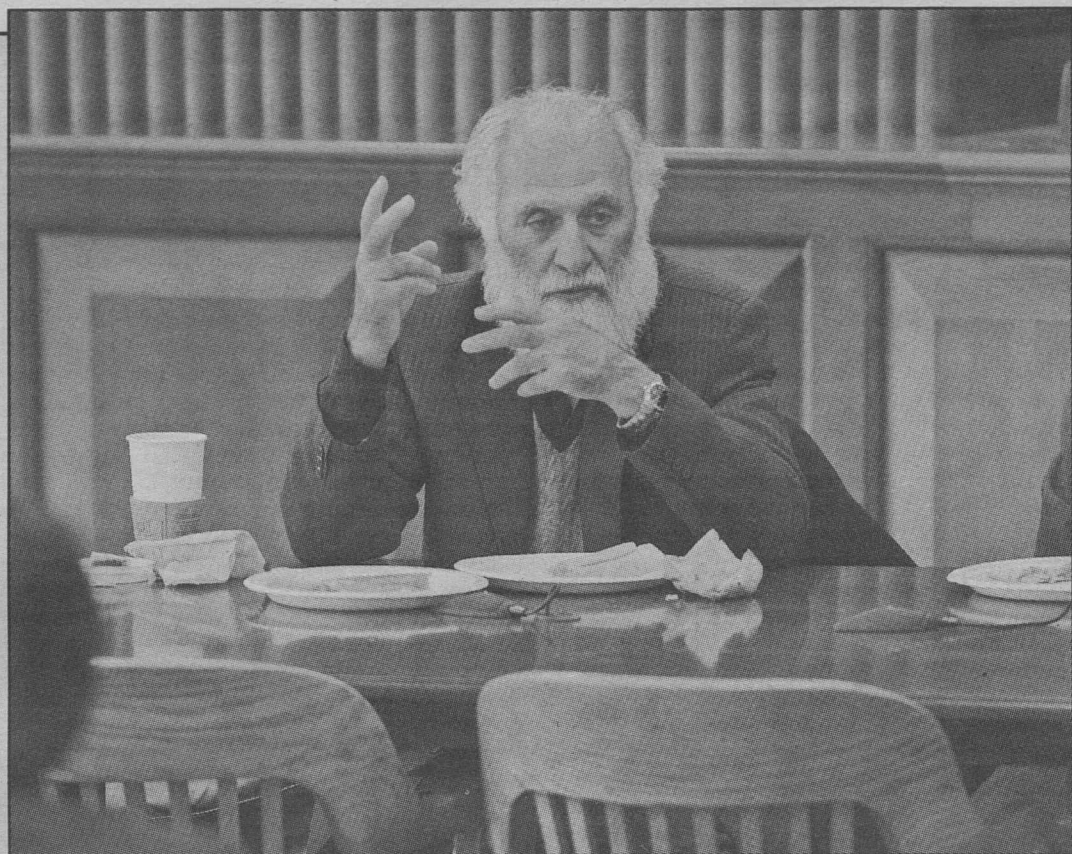
"De-stress Fest," featuring relaxation stations, chair massages, crafts and games, will be held from 11 a.m.-2 p.m. Friday, Dec. 5, in the Danforth University Center and from 3-5:30 p.m. that same day in Ursa's Cafe in the South 40. The events are sponsored by the Student Health Advisory Committee, Congress of the South 40, and the Residential Peer Health Educators.

"It's smart for students to take

advantage of these opportunities to give themselves a break, rejuvenate a little and restore their energy before finals," said Melissa Ruwitch, assistant director, Student Health Services and director of Health Promotion Services. "Many of them appreciate a snack, a relaxation exercise, a massage or a chance to spend time doing a craft. We make sure they leave with stress management tips and information about our resources."

Ruwitch said the health effects of stress on the human body are well-documented, and that stress is a significant factor affecting the academic success of WUSTL students and their peers at other colleges and universities.





**International perspective** Abdul Jabbar Sabit, former attorney general of Afghanistan and current presidential candidate in his country, meets with law students during a brown bag lunch in Anheuser-Busch Hall Nov. 21. Earlier that morning, Sabit spoke to the "Afghanistan: Microcosm of International Crisis" and "Anthropology of the Modern World" classes taught by Thomas Schweich, J.D., visiting professor and ambassador-in-residence at the School of Law, and Robert L. Canfield, Ph.D., professor of anthropology in Arts & Sciences, respectively. Afghanistan announced in April that it will hold a presidential election in fall 2009.

## Coal

### Consortium will have educational value

— from Page 1

funding \$3 million for seed research and constructing a new 150,875-square-foot building to house the University's Department of Energy, Environmental and Chemical Engineering and I-CARES programs.

The new building — named Stephen F. and Camilla T. Brauer Hall — will be completed in 2010. So far, the University's total commitment to new facilities, new professorships and programmatic support for I-CARES exceeds \$60 million.

"In this consortium dedicated to clean coal utilization, we are forming an international partnership between universities, industries, foundations and government organizations to foster improved efficiency, lower emissions and develop ways to address climate change," Wrighton said.

"From a University perspective, this is an exciting way to take coal — one of the nation's most abundant energy resources — and put it to work for the public good. The University also will work to build public understanding of the energy options for the future. The Consortium for Clean Coal Utilization will place St. Louis as the center for clean coal research."

The University also will announce the establishment of the Consortium for Clean Coal Utilization at a news conference Monday, Dec. 8, in Hong Kong at the Second International Symposium on Energy & Environment, organized by WUSTL's McDonnell International Scholars Academy.

Twenty-four premier research universities from around the world are partnered with Washington University through the McDonnell Academy and are working together to address issues related to energy, environment and sustainability, and the Consortium for Clean Coal Utilization will encourage collaborative research involving these university partners, including partners in China and India with major energy needs being met by coal.

"Peabody is the global leader in clean coal solutions, advancing signature projects around the world to commercialize near-zero emission technologies, including

GreenGen in China, the COAL21 Fund in Australia and Vision 21 and FutureGen in the United States," said Peabody Energy Chairman and Chief Executive Officer Gregory H. Boyce.

"Greater use of clean coal is the ultimate solution for re-energizing the world economy, creating tens of thousands of green jobs and building energy security. We applaud Washington University for its leadership in establishing this global consortium, which will drive energy security, economic growth and environmental solutions that contribute to quality of life around the world."

"Arch Coal is pleased to partner with Washington University in St. Louis and some of our region's leading energy companies on this important new initiative," said Arch's Chairman and Chief Executive Officer Steven F. Leer. "Global coal consumption has increased 35 percent in the past six years, and China, India and the rest of emerging Asia are building new coal-based power stations at a rapid pace. Arch is committed to supporting the development of new technologies that will allow this essential fuel to be used in cleaner and more climate-friendly ways. We are confident that the Consortium for Clean Coal Utilization can and will play a vital role in helping the world chart a successful course to a cleaner and more secure energy future."

"With 65 percent of Missouri's electricity generated by coal and the increasing likelihood of greenhouse gas reduction requirements, we must continue to invest in technologies that will allow us to meet our customers' energy needs at a reasonable price — this is especially important given today's challenging economic conditions," said Ameren's Chairman, President and Chief Executive Officer Gary Rainwater. "To meet that goal, coal must be a part of our fuel mix. The work of the consortium is critical to the continued use of coal in a cost-effective and environmentally safe manner. In addition, this initiative will help utility companies respond to the mandates both in Illinois and Missouri to generate double-digit percentages of our power from renewable sources. For all these reasons, we are pleased to support the consortium in this effort."

The consortium partners will help establish the key priorities and laboratory facilities for clean coal research on the WUSTL

campus.

These may include pilot-scale facilities where scientists can perform fundamental research and develop new technology related to more efficient, cleaner combustion of coal and approaches to carbon capture and storage.

Some of the anticipated studies include the use of oxy-coal combustion with carbon capture and storage combined with the use of biomass to generate steam and electricity. Oxy-coal combustion is a new technology that replaces air with pure oxygen, enabling more cost-effective capture of carbon dioxide from the exhaust stream.

"The consortium has a tremendous educational value for our students and the public at large to demonstrate the potential of clean coal combustion as an enabler of new green technologies," said Richard L. Axelbaum, Ph.D., WUSTL professor of energy, environmental and chemical engineering and director of the consortium.

"Another key feature of the proposed research facility will be its unique scale, being larger than a typical university research lab but smaller than an industrial one, so it will bridge the gap between the two and allow the University to offer novel capabilities," he said.

Axelbaum noted that "utilization" in the consortium title is important to the organization's efforts.

"Clean coal utilization could be for power generation, but it could also be to produce petrochemical products, synthetic natural gas or liquid fuels to reduce our dependence on foreign oil and natural gas," he said.

"Another aspect of the consortium would be to research the use of clean coal power plants as enablers of green technologies. For example, the burning of biomass, such as wood or switch grass with coal, and the capture and storage of the carbon dioxide in the exhaust can actually reduce greenhouse gases in the atmosphere," he said.

"And the use of carbon dioxide in the exhaust stream to grow algae can lead to a source of liquid fuels while simultaneously removing carbon dioxide from the atmosphere," he said.

The consortium draws upon the strengths of the University's Department of Energy, Environmental and Chemical Engineering, I-CARES and the

## New sorority will be 18th Greek community on WUSTL campus

By NEIL SCHOENHERR

The Alpha Omicron Pi (AOPi) Fraternity will be the seventh National Panhellenic Conference organization for women to join the Greek community at Washington University, announced Ryan Jasen Henne, director of Greek Life. Colonization is slated for spring 2009.

"The Greek Life Office and the existing Greek community is excited and optimistic that this organization will bring a new population of women into the system," Henne said. "It will allow them the chance to experience new leadership initiatives as well as learning and philanthropic opportunities their Greek affiliation can provide them."

Alpha Omicron Pi will work with the Women's Panhellenic Association and the Greek Life Office to identify a colonization timeline to ensure their successful transition to campus.

Representatives of the

organization were on campus Dec. 1 to meet with student leaders and Greek Life staff. In the coming months, AOPi will train local alumnae as advisers and hire a resident consultant to work with the colony full time.

Currently, six nationally recognized sororities and 11 nationally recognized fraternities have chapters on the WUSTL campus. The fraternities have houses on "Fraternity Row" in the northwest corner of the Danforth Campus and the sororities have suites in the Women's Building. The Greek system at WUSTL makes up approximately 27 percent of the undergraduate population.

AOPi was founded in 1897 at Barnard College of Columbia University.

Alpha Omicron Pi is an international women's fraternity inspiring academic excellence and lifelong learning, developing leadership skills through service to the fraternity and the community and promoting friendship for a lifetime.

McDonnell Academy Global Energy and Environment Partnership (MAGEEP) as well as the St. Louis regional coal companies, Arch and Peabody Energy, and the utility company Ameren. It is anticipated that several additional corporations will join the consortium.

A key goal of I-CARES is to foster institutional, regional and international research on the development and production of biofuels from plant and microbial systems, solar energy, and the exploration of sustainable alternative energy and environmental systems and practices.

Research in the consortium will focus on the region's important coal resources and efforts to mitigate carbon dioxide accumulation, improve combustion processes and reduce emissions.

I-CARES operates under the direction of Himadri Pakrasi, Ph.D., the George William and Irene Koechig Freiberg Professor of Biology in Arts & Sciences and professor of energy in the School of Engineering & Applied Science. Earlier this year, I-CARES funded 12 pilot projects in the areas of bioenergy, solar energy and sustainability.

Organized in 2007, MAGEEP is a consortium of 25 international universities and corporate partners of the McDonnell International Scholars Academy, including Washington University, working together in energy, environmental and sustainability

research, education and sustainable campus operations.

MAGEEP operates under the direction of Pratim Biswas, Ph.D., the Stifel & Quinette Jens Professor of Environmental Engineering Science and chair of the energy, environmental and chemical engineering department.

MAGEEP research focuses on energy, aerosols and air quality, and aquatic processes and water-quality issues. There are 14 projects involving WUSTL faculty and MAGEEP collaborators.

Peabody Energy is the world's largest private-sector coal company and a global leader in clean coal solutions. Its coal products fuel approximately 10 percent of all U.S. electricity generation and 2 percent of worldwide electricity.

St. Louis-based Arch Coal is the nation's second-largest coal producer and supplies cleaner-burning, low-sulfur coal to 148 U.S. power plants in 33 states and customers in more than a dozen countries worldwide. Through its national network of mines, Arch Coal provides 6 percent of the electricity generated in the United States.

With assets of approximately \$21 billion, Ameren serves approximately 2.4 million electric customers and almost 1 million natural gas customers in a 64,000 square mile area of Missouri and Illinois. Ameren owns a diverse mix of electric generating plants strategically located in its Midwest market with a generating capacity of more than 16,400 megawatts.

## Record

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## Notables

### Introducing new faculty members

The following are among the new faculty members at the University. Others will be introduced periodically in this space.

**Dawn Brancati**, Ph.D., joins the Department of Political Science as assistant professor. Her research interests include intrastate conflict and comparative elections. Brancati earned a doctorate from Columbia University and completed postdoctoral fellowships at Princeton and Harvard universities.

**Isaac Kleshchelski**, Ph.D., joins Olin Business School as assistant professor of finance. Before earning a doctorate from the Kellogg School of Management at Northwestern University, Kleshchelski earned a master's degree in law and banking at Tel Aviv University, Israel. He has worked for KPMG as a financial consultant for the high-tech sector and in international corporate taxation for PricewaterhouseCoopers. His areas of research include asset pricing and macroeconomics.

**Ji-Eun Lee**, Ph.D., joins the Department of Asian and Near Eastern Languages and Literatures in Arts & Sciences as assistant professor. She earned a doctorate from Harvard University in Korean literature and culture with a dissertation on women's reading in the later 19th and early 20th century. Before joining WUSTL, Lee worked and taught at the University of Minnesota, the University of British Columbia, Dartmouth College and the University of Toronto. Her research interests include construction of gender in modern and contemporary Korean literature and film, "space" in literature, and print culture and readership in the 19th and 20th century.

**Selin A. Malkoc**, Ph.D., joins Olin Business School as assistant professor of marketing. A native of Turkey, Malkoc began her academic studies in Ankara at Bilkent University before pursuing a master's degree at the University of Texas and a doctorate at the University of North Carolina at Chapel Hill. Most recently, she was an assistant professor at the University of Minnesota's Carlson School of Business. Her research interests include consumer behavior, behavioral decision-making, intuitive decision-making and the processing of aesthetic cues.

**Rodolfo Manuelli**, Ph.D., joins the Department of Economics in Arts & Sciences as professor. After earning a doctorate at the University of Minnesota, Manuelli had appointments at Northwestern University, Stanford University and the University of Wisconsin-Madison. He has served as editor and co-editor of several journals. His research areas include economic growth, development and macroeconomics.

**Lori Markson**, Ph.D., joined the Department of Psychology in Arts & Sciences as assistant professor. Markson earned a doctorate from the University of Arizona and studies cognitive development in infants and young children with a focus on conceptual

and social-cognitive development. She is interested in how children learn the meanings of words, pragmatics and theory of mind and the development of social cognition in early childhood.

**Liviu Mirica**, Ph.D., joins the Department of Chemistry in Arts & Sciences as assistant professor. Mirica earned a bachelor's degree from the California Institute of Technology and a doctorate from Stanford University. For the past three years, Mirica has been a National Institute of Health postdoctoral fellow at the University of California, Berkeley. Mirica's research interests center around the role of metal ions in chemistry and biology and include renewable energy catalysis, biomimetic oxidation catalysis, metalloenzyme-catalyzed histone demethylation, and metal-mediated amyloid peptide aggregation in Alzheimer's disease.

**Alvin Murphy**, Ph.D., joins Olin Business School as assistant professor of economics. Murphy earned a doctorate from Duke University after completing undergraduate and graduate degrees at Trinity College Dublin and University College Dublin, respectively. His research interests include public and urban economics, industrial organization and applied econometrics.

**Sherif Nasser**, Ph.D., joins Olin Business School as assistant professor of marketing. Nasser earned a bachelor's degree in mechanical engineering at Cairo University in Egypt. He worked for nearly a decade in marketing, sales and project management positions in Egypt and the United States. Nasser earned a master of business administration at Baruch College and a master's degree and doctorate in marketing from the Stern School of Business at New York University. Nasser's research interests include media management, game theory, advertising, social networks and competitive strategies.

**Ryan Platte**, Ph.D., joins the Department of Classics in Arts & Sciences as assistant professor. He earned a doctorate from the University of Washington. His field is ancient Greek and Latin language and literature, particularly Homer and archaic Greek poetics, Greek and Latin linguistics, Sanskrit and Roman invective.

**Raul Santaaulalia-Llopis**, Ph.D., joins the Department of Economics in Arts & Sciences as assistant professor. He earned a bachelor's degree from the Universitat de Valencia, a master's degree from University College London and a doctorate from the University of Pennsylvania. He is using quantitative macroeconomics theory to explore the interaction between economic development, family structure and skill acquisition — and, for example, diseases such as AIDS that affect all of the above; the role of individual heterogeneity on development and aggregate fluctuations; and the identification of income uncertainty using durables and irreversible decisions.

### Entrepreneurs vie for seed money in race for Olin Cup

By MELODY WALKER

The number of teams competing for the Olin Cup was whittled down to five finalists Nov. 19 in the "elevator pitch" stage of the race for \$70,000 in seed money to start a new company.

Three of the finalist teams are student-supported and in the running for an additional \$5,000 prize given to the best business proposal submitted by a Washington University student team.

A record-breaking 38 teams entered the annual business formation contest this year, which is operated by the Skandalaris Center for Entrepreneurial Studies.

"We're very excited in the growth of the competition, particularly among teams that are either founded by or supported by students," said Ken Harrington, the center's managing director. "A number of teams who submitted executive summaries were also funded or supported by Washington University faculty and alumni. Our teams will receive valuable feedback from the judges through every stage of the process."



All contestants are required to submit an executive summary of their proposed business when they enter the competition. From that initial field of 38 entrants, 16 semifinalists were chosen to compete in the "elevator pitch" challenge that requires a two-minute presentation of the business idea to a team of judges.

This year's finalists (\* indicates student-owned or student-supported venture):

- Mindfullgames.com proposes selling socially interactive vocabulary-training games to school and after-school programs in Missouri;

- Sequoia Music\* plans to create and distribute a copy of an artist's performance to concertgoers as they exit a venue;

- You Are the Star Products

LLC is creating personalized books and products that will feature children's photographs;

- Verto Medical Solutions LLC\* is developing technology to digitally scan ears, enabling the sale of custom fit earbuds used in MP3 players and cell phone headsets; and

- Virtual Nerd\* offers online tutoring services using video and multimedia content to help high-school and college students master physics and calculus.

The final hurdle for the entrepreneurs will be writing and presenting a full business plan in January. The Olin Cup winners will be announced Feb. 5, 2009, at an awards ceremony.

The Olin Cup was created as a cross-campus activity in 1987 by the Olin Business School. The competition is sponsored by Sonnenschein, Nath & Rosenthal LLP; the St. Louis Regional Chamber and Growth Association; RubinBrown; Lopata, Flegel & Company LLP; Polsinelli Shalton Flanagan Suelthaus PC; Senniger Powers LLP; and the Olin Business School.

## For the Record

### Of note

**John F. Heil**, Ph.D., professor of philosophy in Arts & Sciences, has received a one-year, \$156,403 grant from the National Endowment for the Humanities for research on "Metaphysics and Mind." ...

**Jacqueline E. Payton**, Ph.D., instructor in pathology and immunology, has received a one-

year, \$25,000 fellowship grant from the College of American Pathologists Foundation for research titled "Genome-Wide Analysis of AML: Identification of Somatic Changes and Correlation with Clinicopathological Features and Survival." ...

Four School of Medicine researchers were awarded grants from the Susan G. Komen for the Cure Sept. 30 as part of \$100 million in grants to scientists worldwide. **Helen Piwnica-**

**Worms**, M.D., Ph.D., the Gerty T. Cori Professor, Howard Hughes Medical Institute Investigator in Cell Biology and Physiology and professor of medicine; **Loren Michel**, M.D., assistant professor of medicine and of cell biology and physiology; and **Rebecca Aft**, M.D., Ph.D., associate professor of surgery, each received \$600,000 grants. **William Gillanders**, M.D., associate professor of surgery, received a \$180,000 grant.

## Obituary

### Poet Donald Finkel, founding member of Writing Program, 79

By SUSAN KILLENBERG MCGINN

Donald Finkel, poet-in-residence emeritus of English in Arts & Sciences, author of 14 books of poetry and a memorable teacher, died Nov. 15, 2008, of complications from Alzheimer's disease at the Schuetz Manor, an assisted-living facility in St. Louis County. He was 79.

Finkel joined the University community in 1960 with his wife, the late poet and novelist Constance Urdang. Finkel and Urdang were founding members of the University's graduate Writing Program in the mid-1970s.

As part of what an observer tagged as "one of the largest informal writers' colonies on an American campus," Finkel and Urdang, along with Stanley Elkin, John Morris, Howard Nemerov, Mona Van Duyn, Jarvis Thurston and William Gass, gathered at Gass' home one summer evening in 1975 to hammer out the establishment of a writers' program at the University.

"Not only was Don a member of the remarkable community of writers at Washington University who started the Writing Program, he and his wife, Constance Urdang, virtually held that fledgling enterprise together during its early years," said Wayne Fields, Ph.D., the Lynne Cooper Harvey Distinguished Chair in English.

"They served as academic advisers but went well beyond the

effort most of us put into this responsibility; they created an intellectual home for a generation of student writers, visiting colleagues and younger faculty in the English department," he said. "Don was both artist and teacher, vocations — each with its special demands — he combined with grace and generosity."

A portrait of Finkel, who retired from the University in December 1991, was installed on Level 4 of Olin Library in October 1998 as part of the library's visible



Finkel

testimony to the efforts of those gifted writers who created what is today a prestigious master of fine arts writing program. Among Finkel's books of poetry are "The Clothing's New Emperor" (1959); "A Joyful Noise" (1966); "The Garbage Wars" (1970), which was nominated for a National Book Award; "A Mote in Heaven's Eye" (1975), nominated for a National Book Critics Award; "What Manner of Beast" (1981); and "Not So the Chairs: Selected and New Poems" (2003).

In 1969, Finkel was the first poet to go to Antarctica. He wrote "Adequate Earth," a book-length poem about his month-long stay at McMurdo Station. He won the prestigious Theodore Roethke Memorial Foundation Prize in

1974 for "Adequate Earth," which was later set to music and performed at Powell Symphony Hall.

Other awards include a National Endowment for the Arts Award in 1969 and a Guggenheim Fellowship in 1967. In 1980, the American Academy and Institute of Arts and Letters gave him the Morton Dauwen Zabel Award for being a "poet of progressive, original and experimental tendencies."

A Phi Beta Kappa, Finkel earned a bachelor's degree in philosophy, graduating magna cum laude, in 1952 and a master's degree in English in 1953, both from Columbia University. He did postgraduate work at the University of Illinois and at the University of Iowa.

He taught at the Iowa Writers' Workshop and Bard College before joining Washington University's faculty.

Urdang, his wife of 40 years, died in 1996. He is survived by a son, Tom Finkel of St. Louis; two daughters, Liza Finkel of Portland, Ore., and Amy Finkel of St. Louis; a half-brother, David Finkel of Manhattan; and two grandchildren, Annabel Rae Finkel and Jacob Elijah Finkel, both of St. Louis.

The Writing Program in the English department will hold a memorial service in celebration of the lives and legacy of both Finkel and Urdang at 11:30 a.m. Dec. 12 in the Women's Building Formal Lounge.

For more information, call 935-5190.



## Washington People

**J**ames T. Stueber could be called the helmsman of the School of Medicine. On a campus of 5 million square feet, he makes sure that employees and patients have heating, cooling, lights and other necessities. He also makes sure the roofs don't leak, elevators function, and mechanical and fire alarm systems operate when necessary. And he and his staff ensure that tissue samples used in research stay at the right temperature and stored embryos in the IVF program remain viable.

Stueber, director of facilities engineering, does this by overseeing the work of 80 technicians, including plumbers, carpenters, electricians and heating and air-conditioning personnel.

Stueber's colleagues describe him as extremely committed, "rock-solid" dependable and expert at problem solving.

"Jim is one of the most dedicated and focused individuals I have ever met," says John Ursch, director of protective services, who has worked with Stueber for more than 13 years.

"I have learned a lot from him and enjoy every time I have a chance to meet with him," he says. "And with all of his skills, there is never a hint of ego. I find that a rare quality."

Bruce Backus, assistant vice



**James T. Stueber (right), director of facilities engineering at the School of Medicine, goes over the ledger book in the physical plant boiler room with Steve Hermann, assistant chief engineer. "Jim has established a premier facilities engineering organization recognized by his peers and the facilities engineering community," says Walter W. Davis Jr., assistant vice chancellor and assistant dean for facilities operations. "Jim has transformed the operation of the power plant and the infrastructure systems supporting the medical school."**

By DIANE DUKE WILLIAMS

## Keeping the engine humming

Stueber ensures the Medical Center's systems run smoothly

chancellor for environmental health and safety, says Stueber's modesty and soft-spoken personality may give him a low profile at the medical school, but they don't detract from his ability to get things done.

"He's a very hard-working person," Backus says. "He is one of the people that I and many others at the University go to in order to fix the difficult problems that we encounter. And he truly believes in safety, energy conservation and customer service."

Stueber starts most days by "seeing if the engine's running OK" in the basement of the North Building. Here, he checks in with his team supervisors, who oversee about 70,000 points of information on a dozen computer monitors. These computers keep track of any problems with air handlers, chillers, boilers and systems in the Genome Sequencing Center, the Good Manufacturing Practice facility and other locations.

He also pays the medical school's utility bills, which include electricity and natural gas. These run \$40,000 a day for a total of about \$15 million a year.

More than anything, Stueber enjoys the variety and latitude in his job.

"I get to focus on what's most important, and the rest just comes along," he says.

Despite the scope of his position, Stueber says he's able to sleep at night. "We're all working together to get the job done, and I've been very fortunate to have the best employees and managers that one could ask for," he says. "I look at all my employees like customers and ask how can I best support them to do their jobs."

### Saving energy

Stueber has led the energy-conservation efforts on the medical school campus since he arrived 16 years ago. Through Stueber's technical and operational leadership, facilities engineering has achieved energy savings of more than \$51 million, says Walter W. Davis Jr., assistant vice chancellor and assistant dean for facilities operations.

Stueber compares energy conservation efforts to peeling an onion. The first layer of the onion is capital improvement — replacing old technology such as boilers with new, more efficient technology. Since 1992, the medical school also has installed automated lighting systems, variable speed systems that deliver the right amount of energy when it's needed and an automated campus-wide chilled-water system. This system handles about 25,365 tons of cooling capacity, while a typical home's cooling capacity is three tons.

A second layer is operational initiatives, which include training custodians to turn off lights after cleaning rooms and setting thermostats in labs and offices back at night. As part of this layer, Stueber also developed a recommissioning group that goes through all of the existing space at the medical school every four years to check that everything is working properly

and to make any needed adjustments or changes.

"A lot of times, maintenance departments don't do maintenance," he says. "They just put out fires. We have an extensive preventive maintenance program."

The last peel on the onion is awareness — getting staff and employees to take simple steps to conserve energy. Some examples are convincing employees to turn off their space heaters and close sashes on fume hoods when not in use.

Stueber dreams of having a flat-screen monitor in every building lobby that shows how much energy is being used.

"I'd love for there to be a board that lights up if someone didn't turn their lights off or used a space heater," he says.

He and his staff also have played a large role in selecting everything from equipment to lighting at the new BJC Institute of Health at Washington University, which is scheduled to open in December 2009.

"There was a time when we didn't get input, and getting handed a building was not ideal," Stueber says. "But to Walt's credit, he has brought his departments together, and there's a true collaboration. It's the little things, like not putting a 10-foot mirror above a counter where the custodian can't reach to clean it."

Davis says Stueber has made a significant impact on facilities engineering.

"He has established a premier facilities engineering organization recognized by his peers and the facilities engineering community," he says. "Jim has transformed the operation of the power plant and the infrastructure systems supporting the medical school."

He adds that some of Stueber's greatest qualities are his drive to learn more and to increase performance.

### Working his way up

Stueber's father was a construction electrician, and his mother worked her way up from secretary to broker in an insurance firm. He believes his mother taught him to embrace change and to always try to better himself.

"I realized at a pretty young

age that it was up to me to improve my life," he says. "Another big life-changing experience was having children."

Stueber has worked extremely hard to get where he is today. He mopped floors to put himself through Ranken Technical College to become a construction electrician. After he landed an electrician's job at Monsanto Co.'s World Headquarters, he enrolled in night courses at Southern Illinois University Edwardsville to work toward an electrical engineering degree. In 1992, he was named manager of utilities at the School of Medicine, and he began classes in the executive master's of business administration program in the Olin Business School in 2003.

Stueber met Lynette, his wife of 26 years, through his brother-in-law. She stayed home with their daughters and earned a teaching degree from Southern Illinois University Edwardsville the same year that Stueber earned his electrical engineering degree. She is a substitute teacher.

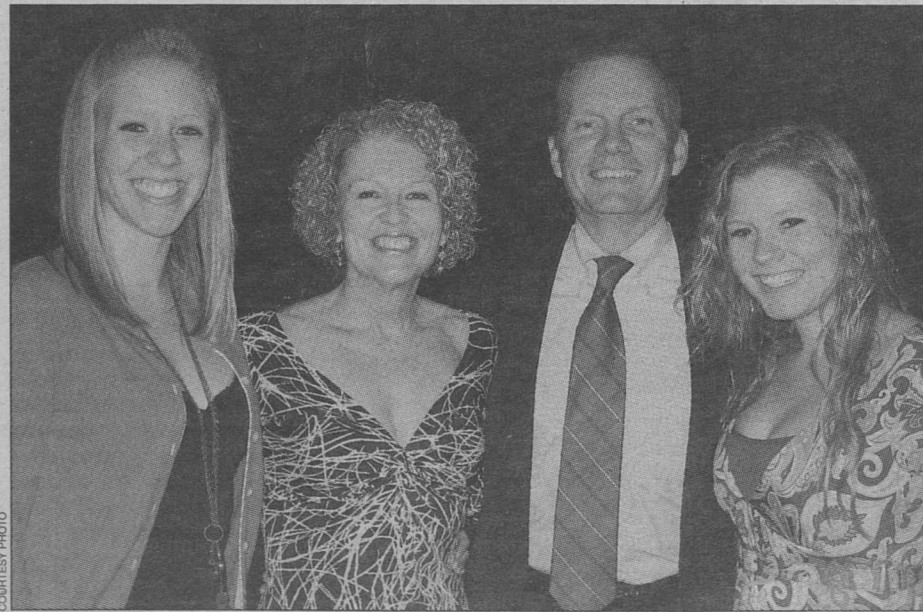
The two enjoy traveling and just finished a major addition to their home in Columbia, Ill.

Stueber also plays golf and tennis and likes to read.

One of the highlights of his day is riding to work with his daughters, both undergraduate students at Washington University. Rachel is a junior majoring in foreign language in Arts & Sciences, and Meagan, a freshman, is undeclared.

A favorite book of Stueber's is "First Things First," which stresses balance and setting goals in all areas of your life.

"The book says a person should put the big rocks in the glass first and then put the little rocks around them," he says. "That's how I try to approach my life."



The Stueber family: (from left) Rachel, Lynette, Jim and Meagan.

### James T. Stueber

**Title:** Director of facilities engineering

**Years at WUSTL:** 16

**Family:** Wife, Lynette; daughters Rachel and Meagan

**Hobbies:** Traveling, golf, tennis and reading